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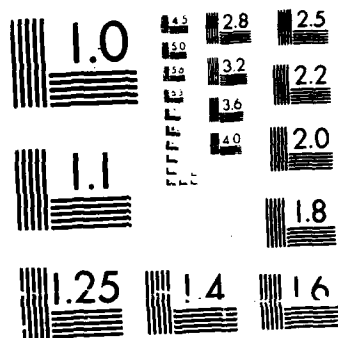
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GUSTO: Training Tailored to User Needs

Marjorie E. Powell

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Abstract: The mission of the Defense Technical Information Center (DTIC) includes facilitating access to scientific and technical information available from hundreds of databases, online services, and networks. Currently under development at DTIC, the DoD Gateway Information System (DGIS) is designed to meet the diverse needs of its users, incorporating accessing, downloading, merging, and post-processing information from a wide variety of sources.

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GATEWAY PROVES TO BE A NECESSITY

The Defense Technical Information Center (DTIC) is tasked with providing technical information to the Department of Defense (DoD) research, engineering, and management community. Headquartered at Cameron Station, Alexandria, VA, DTIC's mission has been to provide online access to an awesome volume of technical information, both classified and unclassified. DoD agencies and the thousands of contractors that serve the Defense industry have an intense and sometimes immediate need for information. Fulfilling that need has proven to be a major challenge for DTIC.

The rapid advance of information technology has made massive amounts of data available to potential end users. That has created another monster to battle because of the number of databases in which information is stored. Any retrieval process is not monumental in and of itself, but when there are several hundred databases involved, each with its own vagaries, the task takes on different dimensions. A gateway system designed to incorporate numerous databases and still be user-friendly proved to be the only solution. Adapting the Technology Information System (TIS), a system created by Lawrence Livermore National Laboratories (LLNL), DTIC has been developing the DoD Gateway Information System (DGIS) for several years. Prototype development has progressed systematically with the use of module teams, and the project is now aimed to fulfill the goal of training those most intimately concerned with the final product -- the end users.

2. EASE-OF-USE CRITICAL

Human factors have played a major role in the development of DGIS. The system has been designed to provide DoD researchers and management personnel with a single, easy-to-use interface for accessing, interrogating, and post-processing information from the numerous databases relevant to their needs. DGIS transforms those heterogeneous resources into a single database, encompassing the scope of the user's needs.

Much of Ben Shneiderman's work was carefully studied during preliminary analysis of DGIS, and his philosophies have been incorporated into the system. During a recent interview Shneiderman commented:

Instead of feeling guilty or anxious when they (end-users) get a message like "Syntax Error," they should express their anger at the system designer who was so inconsiderate and thoughtless. Instead of feeling inadequate or foolish because they can't remember a complex sequence of commands, they should complain to the designer who didn't provide a more convenient mechanism or seek another product that does. (Rosenberg, p. 10)

From the development considerations of DGIS to the recognition of the need for a full-fledged office to provide DGIS user support, the primary focus has been, and will remain, meeting the needs of the user. In the beginning stages of DGIS project work at DTIC, around 50 users were trained in the use of the TIS system and asked in return to give feedback to DTIC on their experiences with the system. As the actual prototype stage of DGIS began with a switching of software from the computer at LLNL to DTIC's computer in Alexandria, it became apparent that there was a demand for the system and that the users needed a lot more than just a password to get into the system. Professionally developed training and user support functions such as hotline and electronic mail monitoring were seen by the DGIS team as crucial to the acceptance of the system.

3. CONTRACTOR PROVIDES SUPPORT

The Gateway User Support and Training (GUSTO) office began providing services for DGIS users in the fall of 1985. Basic training courses have been given by experienced trainers from Bolt, Beranek and Newman (BBN). The site for the classes has been BBN's offices in Arlington, VA. A critical step in the process has been attendee evaluation comments after the participants have been exposed to a three-day training session. The information is carefully analyzed by BBN and DTIC personnel to ensure recommendations are included in future sessions. Of course, it is not feasible to meet all individual demands, but those that could potentially impact the majority of DGIS users are carefully studied and incorporated into revisions of the course curricula.

As anticipated, the greatest variable in the actual training sessions has been the level of searching and automation expertise of the participants -- ranging from novice to expert. This has generated some concern, especially in the hands-on portions of the training sessions, but grouping those with similar degrees of expertise has alleviated the problem. As additional features in the system become available, this will be even more important since participants have noted repeatedly that the labs are a high point of the sessions.

4. GUSTO ADAPTS TRAINING

Just as DGIS itself is still in the prototype stage, the GUSTO training is also still under development. As more users attend the courses, refinements are made to reflect divergent needs. A typical 3-day format currently includes the following topics:

DAY 1

Overview and introduction to DGIS

Online presentation

Lab: Logging-in, main menu (various features)

File operations

Bibliographic searching

Connecting to remote systems

Connecting to people

Lab: File operations and communications

DAY 2

Connecting review

Electronic mail

Lab: Electronic mail

Electronic mail review

Explanation of upcoming features

Citation processing

Lab: Post-processing

DAY 3

Review

Citation analysis

Bibliography preparation

Lab: Post-processing

Advanced features

Editing

Lab: Editing and review of entire system

A critical element in training is the flexibility to tailor sessions to meet the needs of different attendees. For instance, more experienced searchers noted they do not need in-depth training in bibliographic searching. Others have felt that a tutorial approach on this subject was needed and welcomed. Labs are also individualized; different experience levels are grouped together and exercises are tailored accordingly. A step-by-step lab approach is used only if warranted.

Experienced operators are allowed to experiment on their own. The agenda order and emphasis are also extremely flexible. Prior contact with the attendees establishes their needs and desires, and the entire course is structured to meet those issues. Each course is different because the attendees are different. GUSTO staff have the ability to adapt quickly to the divergent needs of any group they train.

5. GUSTO SERVES AS CONTROL

Overall day-to-day control of DGIS is being shifted from the developmental to the operational stage since DGIS is approaching the stage of completion that will allow productive use of the system by various types of users. GUSTO is providing several important functions that will facilitate the efficient use of DGIS.

Documentation preparation was one of the initial requirements of the project. Materials were needed for classroom instruction, as well as for DGIS users who would not be attending a training session. Attendance at training sessions is recommended; but, since training at sites distant from Washington is not presently provided, travel restrictions do prevent some DGIS users from attending class.

Ensuring that material was usable by a wide variety of knowledge levels proved to be critical. The User's Guide to DGIS was one of the initial steps. The guide gives an extensive overview of DGIS and a detailed explanation of basic associated terms and how various components function. Logging-in, logging-out, using passwords and connecting to remote retrieval systems are discussed at length. Some of the chapters discuss individual DGIS features, and bibliographic online searching techniques are highlighted. Several appendices give vendor information and search hints. In-depth information is provided on basic DGIS commands and how the user can best utilize the system to serve his needs. Retrieval systems such as BRS, CAS ONLINE, DIALOG2, DOE/RECON, NASA/RECON, NLM/MEDLARS, and ORBIT are discussed with examples of how to handle various commands in each system. The user's guide can be seen as a how-to explanation of DGIS.

GUSTO is also responsible for preparation of training materials such as a workbook used in conjunction with viewgraphs in classroom instruction, affording an opportunity to make personalized notes as additional explanation is given. All of the documentation requires revision as often as is reasonable considering the changing nature of DGIS.

Another important function GUSTO performs is direct contact with DGIS users. This activity includes operation of a user hotline that provides call-in assistance; monitoring and responding to electronic mail requests for assistance or information; and serving as liaison between DTIC and its various audiences. GUSTO also prepares and distributes a quarterly newsletter entitled GUSTO TALK. Written in an informal style, the newsletter is a vehicle to provide information on current and anticipated changes in the system. Menu alterations and the addition of upcoming features such as the database directory and SearchMAESTRO, a search interface, are typical examples of material that is discussed in depth. The newsletter also allows end user input and question and answer segments that ensure timely information transfer to the general DGIS audiences.

GUSTO plays an integral role in the success of DGIS since it serves as the point-of-contact between the system and the user. As an operating unit, GUSTO evolves to meet the augmented user requirements as they are evidenced.

6. FEATURES DETERMINED BY USERS

As a response to user requests and surveys conducted to determine types of features that would be most valuable, a search interface called SearchMAESTRO and an online directory of databases called the DoD Directory of Databases are the next DGIS features most ready for DGIS users.

SearchMAESTRO is the DGIS version of EasyNet, by Telebase, Inc., with access to over 900 databases and a single network connection to some 16 vendors. This type of addition was highly desired by the less sophisticated users of DGIS since with SearchMAESTRO there are no commands to remember, and live online assistance is available while in the middle of a search.

Some feel that training is not necessary to learn to use an interface such as SearchMAESTRO, but others have reported that they have found that potential users find training desirable and even necessary. GUSTO has plans to offer an abbreviated training course (1 or 2 days) to introduce SearchMAESTRO as a DGIS feature. All documentation and presentation materials will be adapted to reflect the additional feature and its capabilities.

An online directory of resources will soon be an integral part of DGIS. It will contain information on the content, scope, and availability of an extensive number of databases. A menu-driven interface will allow the user to search the directory by database name, producer, or subject. A brief explanation of the directory is already part of the DGIS training agenda and materials, but now that the directory is almost beyond the prototype stage, an expanded explanation and hands-on experience will be added.

7. GUSTO ADVANCES WITH TECHNOLOGY

With the realization and full knowledge that the needs of its user population will continually evolve, GUSTO is associating with the Defense Applied Information Technology Center (DAITC) in order to facilitate the introduction and subsequent use of new information technology in the defense community and other governmental agencies. A program of applied systems evaluation, prototype development, demonstration and training will be conducted. DGIS and GUSTO will be integral parts of DAITC, and, as such, expect to be recipients of advanced technology such as CD-ROM interactive systems, voice recognition systems for information retrieval and voice data entry, and interactive video disk technology. As a participating partner and co-sponsor, GUSTO will be in a position to provide even greater support and valuable service to its user population.

Reaction and modification are the two most descriptive words to characterize GUSTO at this juncture. Reaction to real or perceived user needs is the backbone of the program. Materials, curricula and training sessions are modified to meet those needs. From the outset, DGIS has been intended to be user-friendly, and GUSTO is charged with achieving that goal. The only way it can be realized is to actively seek input and initiate proper corrective action to ensure that users find the system a valuable asset. By its very nature, a gateway system should make life simpler for its users. GUSTO staff will pursue all avenues of communication and elicit constructive response to expedite that process.

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